

AMENDMENTS TO THE CLAIMS

1-5. (Cancelled)

6. (Currently Amended) A method for recording search information for a digital data stream using a digital recording apparatus, the digital data stream being grouped into a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object ~~comprising a start packet arrival time and a last packet arrival time~~, the method comprising:

preparing a stream time map information table associated with ~~[[each]]~~ a stream object;

recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

recording index information in the stream time map information table of ~~a selected the~~ stream object, wherein the index information comprises an index number to ~~locate a~~ indicate at least one first stream object unit associated with ~~the selected a~~ corresponding stream object.

7. (Previously Presented) The method of claim 6, wherein the time length information is expressed as a count value counted at a constant interval.

8. (Previously Presented) The method of claim 7, wherein the count value comprises a number incremented by one over each constant interval.

9. (Currently Amended) The method of claim 6, wherein the stream time map information table associated with ~~[[each]]~~the stream object comprises a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

10. (Previously Presented) The method of claim 6, wherein the mapping list comprises a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

11. (Currently Amended) A method for ~~selectively~~ searching recorded digital data streams recorded in a recording medium comprising a mapping list and a stream object, the data streams stored in a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object ~~comprising a start packet arrival time and a last packet arrival time~~, and the mapping list comprises time length information for each stream object unit, the recording medium further comprising a stream time map information table associated with ~~[[each]]~~the stream object, the stream time map information table comprising index information to ~~locate~~indicate at least one first stream object unit associated with ~~a selected~~the stream object, the method comprising:

~~selecting a stream object for reproduction;~~

locating the stream time map information table corresponding to the ~~selected~~ stream object;

reading the index information of the stream time map information table, wherein the index information comprises a number to locate the first stream object unit corresponding to the ~~selected~~-stream object; and

locating the first stream object unit corresponding to the ~~selected~~-stream object,

12. (Previously Presented) The method of claim 11, further comprising the step of reading the time length information of the first stream object unit from the mapping list.

13. (Currently Amended) The method of claim 12, further comprising:

selecting wherein the stream object ~~is selected~~-based on an externally defined search time and the time length information read from the mapping list is accumulated with subsequent time length information until a stream object unit corresponding to the externally defined search time is located.

14. (Previously Presented) The method of claim 13, further comprising the step of reproducing the recorded digital data stream from the stream object unit corresponding to the externally defined search time.

15. (Currently Amended) An apparatus for recording search information for a digital data stream on a recording medium, the apparatus comprising:

a recording device; and

a control unit operatively connected to the recording device and configured to

~~recording means receiving~~

record the digital data stream by grouping the received digital data stream into a plurality of stream object units, each stream object unit having a predetermined time length, and at least one stream object unit forming a stream object ~~comprising a start packet arrival time and a last packet arrival time;~~

~~generating means generating~~ generate a stream time map information table associated with ~~[[each]]~~ a stream object on the recording medium;

~~recording means recording~~ record time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

~~recording means recording~~ record index information in the stream time map information table of ~~a selected~~ the stream object, wherein the index information comprises an index number to ~~locate~~ indicate at least one first stream object unit associated with the ~~selected~~ stream object.

16. (Previously Presented) The apparatus of claim 15, wherein the time length information is expressed as a count value counted at a constant interval.

17. (Previously Presented) The apparatus of claim 16, wherein the count value comprises a number incremented by one over each constant interval.

18. (Currently Amended) The apparatus of claim 15, wherein the stream time map information table associated with ~~[[each]]~~the stream object comprises a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

19. (Previously Presented) The apparatus of claim 15, wherein the mapping list comprises a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

20. (Currently Amended) An apparatus for selectively searching recorded digital data streams recorded in a recording medium comprising a mapping list and a stream object, the data streams stored in a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object comprising ~~a start packet arrival time and a last packet arrival time~~, and the mapping list comprises time length information for each stream object unit, the recording medium further comprising a stream time map information table associated with each stream object, the stream time map information table comprising index information to locate a first stream object unit associated with a selected stream object, the apparatus comprising:

a reproducing device; and

a control unit operatively connected to the reproducing device and configured to

~~selecting means selecting a stream object for reproduction;~~

~~locating means locating~~locate the stream time map information table corresponding to ~~the selected~~ a stream object;

~~reading means reading~~read the index information of the stream time map information table, wherein the index information comprises a number to ~~locate~~ the indicate at least one first stream object unit corresponding to the ~~selected~~ stream object; and

~~locating means locating~~locate the first stream object unit corresponding to the selected stream object.

21. (Currently Amended) The apparatus of claim 20, ~~further comprising reading means~~ reading the controller further configured to read the time length information of the first stream object unit from the mapping list.

22. (Currently Amended) The apparatus of claim 21, ~~wherein the controller further~~ configured to select the stream object ~~is selected~~ based on an externally defined search time and the time length information read from the mapping list is accumulated with subsequent time length information until a stream object unit corresponding to the externally defined search time is located.

23. (Currently Amended) The apparatus of claim 22, ~~further comprising reproducing means reproducing~~ the controller further configured to reproduce the recorded digital data stream from the stream object unit corresponding to the externally defined search time.

24. (Canceled)

25. (Currently Amended) A method for recording a data stream on a recording medium, the method comprising:

grouping the data stream into stream objects ~~to be recorded by a single recording;~~

recording a playlist for the stream objects, the playlist recorded in a common information file of the recording medium; and

recording stream time map information in a stream information file of the recording medium, the stream time map information comprising a mapping list having time search information ~~dedicated for direct searching of~~ for searching the stream objects,

wherein the common information file recording the playlist and the stream information file recording the stream time map information are managed as separate files.

26. (Previously Presented) The method of claim 25, wherein the mapping list comprises a plurality of sub mapping lists, each of the sub mapping lists comprising time search information for searching the corresponding one of the stream objects.

27. (Previously Presented) The method of claim 25, further comprising recording a table of content in an application information file of the recording medium.

28. (Previously Presented) The method of claim 27, wherein the table of content comprises random-access entry point information that allows random access to the recorded data stream.

29. (Previously Presented) The method of claim 25, further comprising recording presentation sequence information of the recorded data stream in the common information file.

30. (Previously Presented) The method of claim 25, wherein recording the playlist comprises recording random-access entry point information that allows random access to the data stream as a part of the playlist.

31. (Currently Amended) An apparatus for recording a data stream on a recording medium, the apparatus comprising;

a recording unit configured to record the data stream by grouping the data stream into stream objects ~~by a single recording~~, to record a playlist for the stream objects in a common information file of the recording medium, and to record stream time map information in a stream information file of the recording medium, the stream time map information comprising a mapping list having time search information ~~dedicated for direct searching of~~ for searching the stream objects,

wherein the common information file recording the playlist and the stream information file recording the stream time map information are managed as separate files.

32. (Previously Presented) The apparatus of claim 31, wherein each of the stream objects comprises a plurality of stream object units and the mapping list comprises the time search information for searching each of the stream object units.

33. (Previously Presented) The apparatus of claim 31, wherein the mapping list comprises a plurality of sub mapping lists, each of the plurality of sub mapping lists comprising the time search information for searching the corresponding one of the stream objects.

34. (Previously Presented) The apparatus of claim 31, wherein the recording unit records a table of content in an application information file of the recording medium.

35. (Previously Presented) The apparatus of claim 34, wherein the table of content comprises random-access entry point information that allows random access to the recorded data stream.

36. (Previously Presented) The apparatus of claim 31, wherein the recording unit records presentation sequence information of the recorded data stream in the common information file.

37. (Previously Presented) The apparatus of claim 31, wherein the recording unit further records random-access entry point information that allows random access to the data stream as a part of the playlist.

38. (New) A method for reproducing a data stream from a recording medium, the data stream grouped into stream objects, the method comprising:

reading a playlist for the stream objects, the playlist recorded in a common information file of the recording medium; and

reading stream time map information in a stream information file of the recording medium, the stream time map information comprising a mapping list having time search information for searching the stream objects,

wherein the common information file recording the playlist and the stream information file recording the stream time map information are managed as separate files.

39. (New) An apparatus for reproducing a data stream from a recording medium, the data stream grouped into stream objects, the apparatus comprising:

a reproducing unit configured to read the data stream, to read a playlist for the stream objects in a common information file of the recording medium, and to read stream time map information in a stream information file of the recording medium, the stream time map information comprising a mapping list having time search information for searching the stream objects,

wherein the common information file recording the playlist and the stream information file recording the stream time map information are managed as separate files.